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1895

OBSTETRICAL
KET-PHANTOM

BY

Dr. K. SHIBATA

—♦—
Translated

by

A. Howard-Audenried



PHILADELPHIA

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OBSTETRICAL

POCKET-PHANTOM

BY
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Dr. K. SHIBATA,

Specialist in Gynaecology and Obstetrics, Tokio, Japan;
physician to the Woman's Clinic at the University of Munich.

Preface

by

Prof. Franz von Winckel.

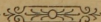
With eight illustrations, one pelvis and two jointed manikins.

Translated from the third edition

by

Ada Howard-Audenried, M. D.,

Physician to the Children's Clinic at the Woman's Hospital,
Philadelphia.



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Translator's Preface.

Dr. Shibata has kindly granted to me permission to translate his »Pocket Phantom« as an aid for students in American colleges. I have endeavored to follow his text as closely as possible, but at the same time have made an effort to express his ideas in terms made familiar to the students of the Woman's Medical College of Pennsylvania by my honored teacher Dr. Anna E. Broomall.

Personal experience has taught me the value of Dr. Shibata's Obstetrical phantom, and it is my sincere desire to extend its usefulness that leads me to translate his little book.

My thanks are due Dr. Anna M. Fullerton and Dr. Getrude A. Walker for their hearty cooperation, criticism and advice.

I hope that my translation from the German into English may meet with the approval not only of Dr. Shibata but of American students who may use the book.

Ada Howard-Audenried.

Preface to the First Edition.

In obstetrical instruction it is important at the outset to familiarize the student with the various mechanisms of labor, an accurate knowledge of which is indispensable. The obstetrical phantoms heretofore used in this kind of instruction are deficient in many ways; they are not easily obtained, and the manikin made of leather, even the best, (constructed according to the model of Breisky) offers many difficulties in representing the various positions, conditions and attitudes of the child.

The effort of my pupil, Dr. Shibata, to construct for the use of students a kind of pocket phantom which they can have at all times and places for practice and for review, is therefore certainly commendable. The student can easily adjust the parts of the phantom in the various normal positions

and can study any complication which may arise in labor.

In the face, brow and vertex presentations as well as in the abnormal positions, the body can be bent on its long axis in perfect imitation of nature.

The positions of the child and the circumferences of the head, (which in the various presentations of the latter is the largest part to pass through the pelvic canal) are shown by lines drawn upon the head of the phantom, and at the same time the measurements of the several diameters are indicated.

Through these means it is possible for the student to solve difficult questions as to the part of the pelvis in which the head lies, and at the same time to form a correct impression as to the necessity of the application of forceps.

This little phantom supplements in many ways the illustrations found in text books on obstetrics. To the student as well as to the practicing physician who may wish quickly to obtain a clearer conception of the relation of the foetal parts to the parturient canal, the pocket phantom of Dr. Shibata can serve as a convenient

and inexpensive substitute for the pelvis and manikin.

It is useful at the examination of midwives, because it offers to the one under examination a very practical opportunity to exhibit, by representation with the phantom, a proper knowledge of the various positions, presentations and attitudes.

For these reasons I believe I can highly recommend the phantom of Dr. Shibata to my Colleagues.

Munich, January 1891.

F. v. Winckel.

Preface to the second Edition.

The fact that nine months after the first Edition of my phantom was issued a second one was in demand, leads me to believe that it has supplied a want felt by students.

The Second Edition is enlarged and contains important corrections which fit it better to fulfill its object.

Furthermore, as all technical terms have been so far as possible omitted, the book is of use to the midwife.

Several additions to the text have been made, and a more accurate description of each position of the child is given deduced, from several manuals (Winckel, Spiegelberg, Schröder).

Drawings have been added to make clearer these descriptions, and sketches have been prepared from drawings recently made from nature.

The pelvis was made capable of extension by the addition of a linen strip in each of its halves.

I hope that the Phantom in its new form will meet with favor.

Dr. K. Shibata.

The first publication concerning an obstetrical phantom was made by the Swedish physician van Hoorn, who first saw a phantom in Paris, about the year 1697. On returning to his home, where he was a teacher in a school of midwifery, he made practical use of the phantom. He adapted to this use a natural female pelvis and a leather manikin. After him, in the course of the eighteenth century, the Englishman Smellie (a pupil of Gregory the elder) used a glass uterus, in which, with a dead child or a manikin, he illustrated obstetrical manipulations. In the year 1770, a Paris midwife, Biheron, brought to the attention of the Academy an apparatus to which she gave the name »Fantome«. This consisted (according to Langsdorff) of a complete and most natural imitation of all the pelvic organs. Afterwards, other physicians in Vienna and A. E. von Siebold in Würzburg, at the end of the last century and at the beginning of this one, made use

of the female cadaver in the demonstration of obstetrical operations. Later, Starke in Jena (1788) and Osiander d. V., in Göttingen, constructed a phantom consisting of a uterus, manikin, placenta and navel string, and each part was made of leather. Froriep attempted, in 1804, to aid physicians by making an entire phantom of papiermaché, and endeavored to bring it to the notice of the medical profession.

The phantom of Ozenne is worthy of mention. It consists of an adjustable female body, with a foetus, which can be arranged so as to represent, in a very realistic manner, the entire process of birth.

Later, Ed. Martin used a phantom of strong leather, made in imitation of nature, both as to size and shape.

Of the newer phantoms, probably the most perfect is the »nouveau mannequien obstétrical« constructed by Matthieu in Paris, after the ideas of Budin and Pinard, by the aid of which the details of external examination and external version can be shown. All internal obstetrical operations, both in the normal and in the contracted pelvis, either in the back or in the side positions, can be demonstrated.

Of the phantoms used in Germany,

perhaps the best known and most widely used is that one designed by B. S. Schulze, of Jena. His design was elaborated by Winckel who proposed the use of a uterus and cervix made of common gum, so that the distensible character of the organ might be shown.

The phantoms so far mentioned are only applicable for clinical purposes, for demonstrations, manipulations and operations, and on account of their size and high price are not practicable.

The phantom constructed by Kleinwächter, is intended only to show the various positions of the head.

My intention is to furnish to the beginner in Obstetrics, both for study and for practice, a help that shall make it possible to represent all the positions of the child, inasmuch as familiarity with these is important for prognosis and therapy.

The object is fulfilled, I think, in my phantom made out of strong paper and one-third the natural size. It can easily be folded so as to form a small package and can be carried in the pocket, ready at any time for use.

I furnish only one pelvis and two manikins. They are provided with heads and

extremities which are connected to the trunk in such a manner as to allow them to be moved in any direction.

Figure I, which represents the child as viewed from the side, serves for demonstration of the normal positions; figure II, which represents the child as viewed from the front, serves for demonstration of the abnormal positions.

Since in most text boocks the various measurements of the diameters of the head are not given, I have denoted on the phantom, by means of dotted lines, their average values as given in the text book of my honored teacher Professor Winckel.

The Use of the Phantom.

For the normal positions, use Figure I. For the abnormal positions, use Figure II.

Place the manikin in the pelvis (which is to be found at the back of the book), and give it the various positions. One can easily represent the arrangement of the foetus or of its presenting parts in the divisions of the pelvis, viz: the pelvic space, the pelvic outlet.

In obstetrics we employ three terms having similar but different meanings: I. Habitus. II. Position. III. Presentation.

I. By habitus we understand the

normal relation of the head, trunk and extremities to one another.

In normal habitus, the child is bent towards the anterior portion of the mother's abdomen. The chin is pressed against the breast. The upper arms lie on either side of the breast, or in front; the forearms are sharply flexed and folded over each other, or they lie beside each other on the breast. The limbs are bent at the knee and are drawn up against the body, while both feet are drawn up and are crossed over each other; the soles of the feet are turned inwards towards each other. The navel-string generally lies in the free space between the upper and the lower extremities.

This normal habitus is usually maintained up to the time of birth.

II. By position is meant the relation of the diameters of the foetal parts to the diameters of the mother's pelvis.

In the first position, the back of the child lies to the mother's right. Instead of using the term »vertex presentation« we say briefly first position and second position. If the head lies obliquely on the mother's left side, we speak of it as first position oblique. If the head lies

obliquely on the mother's right side, we speak of it as second position oblique.

III. By presentation we understand the relation of the long axis of the child to the long axis of the uterus. If, in the longitudinal position, the head lies so as to be the first part to be delivered, we speak of it as »presentation of the head«.

If the breech lies so as to be the first part to be delivered, we speak of it as »presentation of the breech«. If the long axis of the child deviates obliquely from the long axis of the uterus, we speak of it as »oblique presentation«. If the long axis of the child lies at right angles to that of the uterus, we speak of it as »transverse presentation«.

I. Head Presentations.

- a) The Vertex presentation is that form of presentation of the head in which the vertex presents at the pelvic inlet. This presentation is the most common one, being found in 93—95% of all births. The first position (back of the child to the mother's left) is found in about twice as many cases as is the second position.

In the first position of the vertex, the back of the child lies to the left

side of the uterus, the small parts to the right, the buttocks lie, therefore, towards the left side of the uterus. The foetal heart-sounds may be heard on the left side of the mother's abdomen, about midway between the

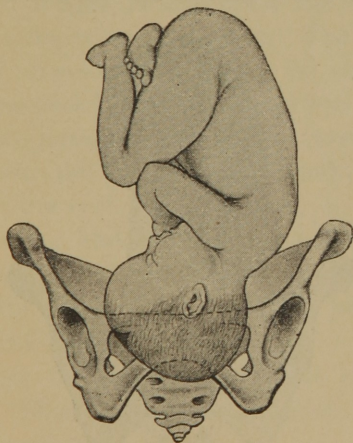


Fig. 1. First Position.

umbilicus and the anterior superior spine of the ilium. The head, in the beginning of labor, lies in the oblique diameter, the small fontanelle to the left and the large fontanelle somewhat higher and to the right.

In the second position of the vertex, the back of the child is turned to-

wards the right side of the mother, and is frequently also turned slightly backwards. The extremities lie on the left side. The foetal heart-sounds are heard on the right side of the mother's abdomen, about a hand's breadth below the umbilicus. The

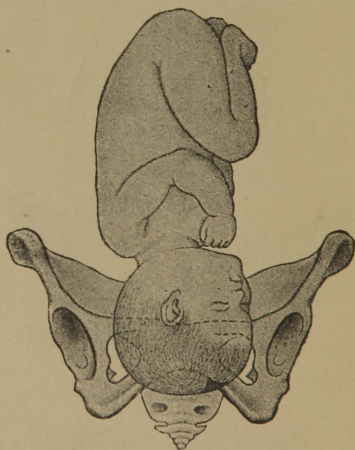


Fig. 2. Second Position.

small fontanelle lies towards the right, and sometimes, at the beginning of labor, a little towards the back. The large fontanelle lies higher and is often turned towards the front and towards the left. Consequently, the short transverse diameter of the head

lies in the direction of one of the oblique diameters of the mother's pelvis.

- b) Face presentations are originally vertex presentations in which the chin has become extended and is no longer flexed upon the chest as in the normal position. The occiput is pressed back against the neck, and the face is turned more or less towards the anterior part of the uterus. We hear the foetal heard-sounds, not, as in the vertex presentation, on the side of the abdomen corresponding to the back of the child, but on the opposite side of the abdomen, below the umbilicus, in which situation we find also the small parts of the child.

There are two divisions of face presentation.

1. In the first and most frequent vertex presentation, the back of the child and also (therefore) the occiput lie on the mother's left, as we have already said. The face presentations are occasioned most frequently by pressure on the back part of the head and by the oblique position of the head in the transverse dia-

meter of the pelvis. From this it follows that the face presentations resulting from extension of the head are most frequent.

The first face presentation is one in which the brow is directed towards the left or somewhat towards

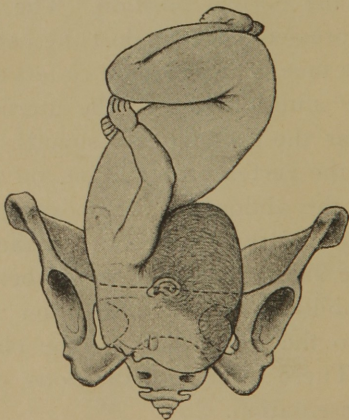


Fig. 3. First face presentation.

the front; sometimes it is directed towards the back, with the chin towards the right side and somewhat backwards, or, it may be, forwards.

The right side of the face lies low, and it is the most dependent portion.

There may form, during the course of labor, a tumor on the face of the child, called a haematoma, involving the right angle of the mouth and the cheek on the same side.

The buttocks lie on the left side of the uterus, the small parts are towards the right.

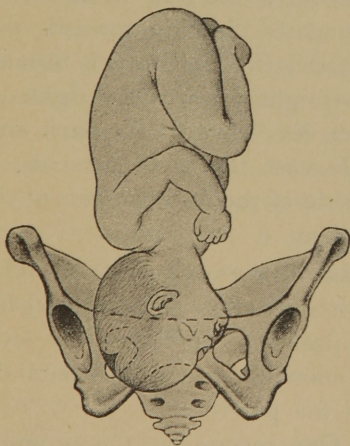


Fig. 4. Second face presentation.

The back forms an obliquity either to the right or to the left.

The foetal heart-sounds may be heard on the right, below the umbilicus.

2. In the second face presentation, the

back lies towards the right, the small parts lie towards the left, and the buttocks lie on the right of the uterus. The heart-sounds are heard on the left side below the umbilicus. The face remains, at the beginning of labor, in the oblique diameter, the chin being directed more or less towards the left. The chin is frequently directed towards the front and left. The brow is turned either straight towards the right, or more or less towards the back and right. In case the brow presents, the left side of the face presents at the same time.

- c) Brow presentations. These are a combination of head and face presentations. In them the face itself remains above the horizontal diameter of the pelvis.

One recognizes the prominence of the forehead as the most dependent part, the large fontanelle (together with the forward portion of the bones of the vertex) on one side of the pelvis; on the other side are the base of the nose, the orbits, and other parts of the face; the frontal suture

lies in the oblique or in the transverse diameter.

- d) The occipito-posterior presentations are not abnormal presentations, but are deviations from the ordinary mechanism of the vertex presentation. The back of the head does not turn towards the front in the course of labor, as in the true vertex presentation, but it turns towards the back and appears over the perineum. In the majority of cases, the occiput is originally directed backwards, but an anterior rotation of the head subsequently occurs. A deviation from this rule is not to be explained from the original position of the child's back in the uterus, but just as in rotation of the posterior part of the head towards the side (for in the rotation of the neck the head must necessarily follow), so also when the occiput is directed backwards, it rotates towards the side of the uterus. These are to be considered as but varieties of the mechanism of the occipital presentation. (Winckel).

The presentations described under

a, b, c and d belong to the common category of head presentations.

We now come to the second division, namely,

II. Pelvic presentations. These are designated in accordance with the particular parts which present.

a) The breech presentation.

In this form of pelvic presentation the back of the child lies towards the left, as in the first position of the vertex. The head is to be felt as a large, round tumor lying in the fundus of the uterus and to the right. The left buttock lies in front, the anus is in the median line of the pelvic inlet, the anal depression lies in a diagonal position in the first oblique diameter. Consequently, the transverse diameter of the child's hips are in the right oblique diameter of the uterus. The heart-sounds are heard on a level with the umbilicus, near the median line.

A second form of breech presentation occurs, in which the back of the child lies to the right, the head being in the fundus of the uterus and to the left. The foetal heart-sounds

are heard on a level with the umbilicus and somewhat to the outer side of the abdomen. The child's back is on the right, and the anus is on the left. Consequently, the crease of the buttocks lies in the second oblique diameter.

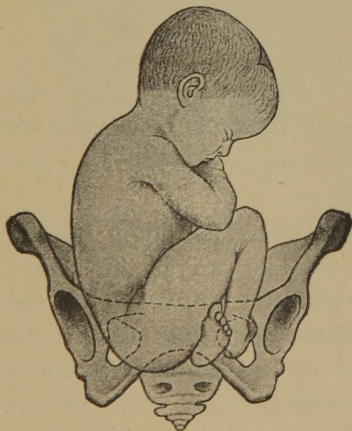


Fig. 5. Second position of breech.

The right buttock lies towards the front. If a tumor be felt by the examining finger, it is due to the presence of the genitalia.

- b) Breech and foot presentations. These have the general characteristics

of the simple breech. The only factor added is the presence of the feet, which lie close to the breech.

c) The footling presentation.

According as one or both feet present, we speak in the one instance of incomplete foot presentation, and in the other instance of complete foot presentation.

d) The knee presentation.

We can diagnosticate this presentation by recognizing the knee.

III. Oblique and Transverse Presentations.

In all the presentations heretofore considered, the long axis of the child coincides with that of the uterus. But in the oblique position, the long axis of the child forms a greater or less angle with the long axis of the uterus, so that the child in utero lies obliquely, or very seldom transversely, and we speak of such positions in the one instance as oblique, and in the other instance as transverse.

In this class of presentations, the head lies lower in the uterus than it lies in the breech presentations, and the breech lies closer to the fundus of the uterus. Therefore, in case of prolapsus of the small parts

only, the arms are alone to be considered. The head lies on one side of the uterus and the buttocks lie on the opposite side.

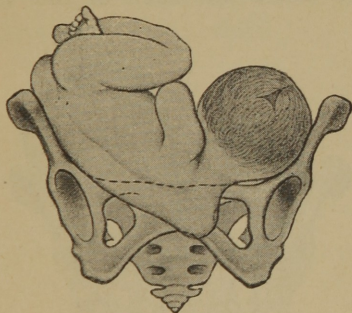


Fig. 6. First oblique position, (a) right shoulder presenting.

The back may lie either towards the anterior part or towards the posterior part of the uterus.

The parts which are most likely to present are the shoulder, the arm, and the hand. From the position of the presenting part (the shoulder, the arm, or the hand) we may judge, with absolute certainty, as to the position of the child's back. The foetal heart-sounds may be heard as in the oblique position, in various places. If the back lies towards the front, the sounds are heard, as a rule, in the median line, above

the symphysis pubis. There are many cases, however, in which the heart-sounds are not heard, although the child is alive; as, for instance, when the back of the child lies

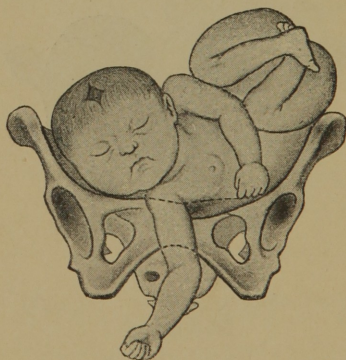


Fig. 7. Second oblique position (b).

towards the mother's sacrum. In such cases it is possible to ascertain the condition of the child by feeling the pulse in the presenting extremities.

According as the child lies on the right or on the left side of the uterus, we speak of the first oblique position (Fig. 6) and the second oblique position (Fig. 7). If the back is turned towards the anterior part of the uterus, we designate the position as subdivision (a); if the back

lies toward the posterior part of the uterus, we designate the position as subdivision (b).

For convenience in referring to the phantom, I add a condensed scheme of the various positions of the child.



Scheme of Presentations.

1. Longitudinal presentations.

A) Head presentations.

- | | | |
|------------------------|---|----------------------------|
| 1. Vertex. | } | Back left, small parts to |
| 2. Face. | | the right, 1st. |
| 3. Brow. | } | Back right, small parts to |
| 4. Occipital Anterior. | | the left, 2nd. |

B) Presentation of Extremities.

- | | | |
|-----------------------------------|---|-----------------------------|
| 1. Breech. | } | Head right, back left, |
| 2. Breech and Foot. | | left buttock anterior, 1st. |
| 3. Foot, incomplete and complete. | | Head left, back right, |
| 4. Knee. | | buttocks anterior, 2nd. |

II. Oblique or Transverse.

Head left, 1st.

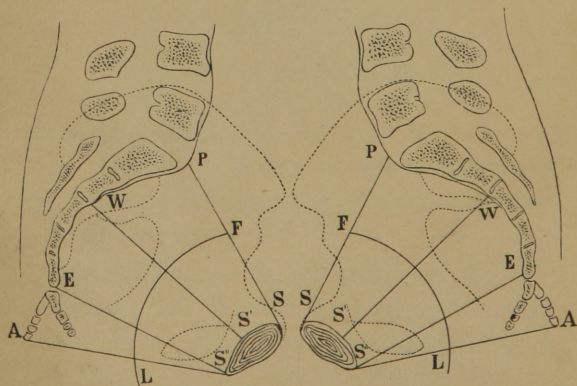
Back anterior, a.

Back posterior, b.

Head right, 2nd.

Back anterior, a.

Back posterior, b.



P—S= Pelvic inlet.

A—S= Pelvic outlet.

P= Promontory.

S= Symphysis.

F—L= Axis of pelvic canal.

S—E= Narrowest part of pelvic canal.

S—W= Widest part of pelvic canal.

In closing, allow me to express my sincere thanks to my honored teacher and chief, Dr. v. Winckel, for his friendly assistance and his kindness in contributing a preface to serve as an introduction to my work.

Description of the Abbreviations

on the phantom.

P = Promontory.

S = Symphysis Pubis.

T = Tuberosities of the Ischium.

A. s. i. = Sacro-iliac articulations.

Sa. = Anterior Sup. Spinous process.

C. = Crest of the Ilium.

P. f. O. = diameter of the Occipital Frontalis.

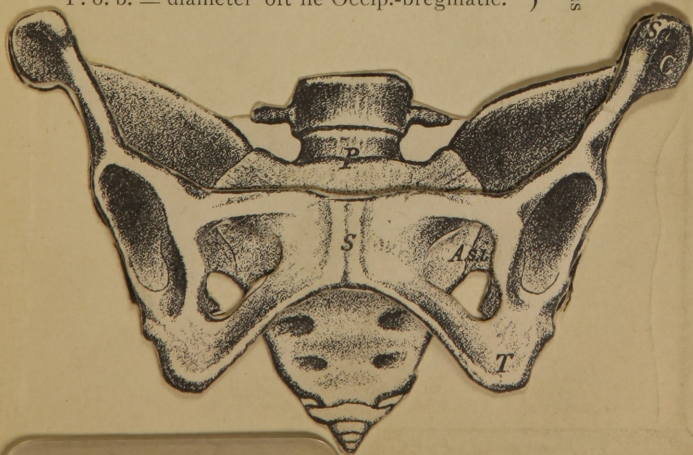
P. m. f. = diameter of the Mento-Frontalis.

P. m. o. = diameter of the Mento-Occipital.

P. o. b. = diameter of the Occip.-bregmatic.

on Pelvis

on the Foetus



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